

Appl. No. 10/039,838
Amdt. Dated August 17, 2004
Reply to Office Action of March 17, 2004

Attorney Docket No. 82874.0011
Customer No.: 26021

REMARKS

This is response to the Office Action dated March 17, 2004. The time period for responding to the outstanding Office Action is extended to August 17, 2004 by the enclosed petition for two month extension of time. Applicant cancels claims 1-13 and 21-24 to narrow the issues in this prosecution. Claims 14-20 and 25-33 are pending. Claims 14 and 25 are amended to correct grammatical errors, to broaden limited aspects of the claims and to clarify the interface used to reflect the portion of light used for the tap. Reexamination and reconsideration are respectfully requested.

The pending claims relate to the compact tap coupler assembly shown in FIGS. 6-8 of the application. The tap coupler shown in those figures has a number of fibers that terminates on the slanted output surface of the substrate that holds the fibers. A small portion of the light from each of the fibers reflects from the ends of the fibers upward through the upper surface of the fiber and is collected by the receiving fibers that act as the taps of the tap coupler. A particularly advantageous aspect of the illustrated tap coupler is that no reflective film is necessary to obtain the reflected light. Rather, the light reflected back from the ends of the fibers is appropriate to use as a tap signal. Thus, no added optical processing of the output surface of the fiber array is needed.

This aspect of the compact tap coupler is reflected in the independent claims pending in this application. For example, claim 14 recites that:

“each waveguide having an output end on an output surface of the substrate for emitting the optical signals from the waveguide into free space, wherein the output surface of the substrate including the output ends of the waveguides is inclined with respect to a plane normal to a direction of the

waveguides at the output surface for reflecting a portion of the optical signals from the waveguides toward a top surface of the substrate.”

None of the prior art of record describes a tap coupler where the tap signal is from a reflection at an interface between a substrate and free space and so claim 14 distinguishes over the cited art.

The Office Action rejects claim 14 over U.S. Patent No. 4,900,118 to Yanagawa, et al. (the Yanagawa patent), with specific reference to FIG. 8 of the Yanagawa patent. FIG. 8 shows in side elevation view an assembly shown in cross section in FIG. 7 and described in column 7 of the Yanagawa patent. FIG. 7 shows an “optical film 4” from which light is reflected for the tap coupler. The assembly of FIG. 8 of the Yanagawa patent is comparatively more complex and no art of record suggests modifying it to produce the structure of claim 14. As such, claim 14 and its dependent claims 15-20 and 32 distinguish over the Yanagawa patent, whether taken alone or in combination with other art of record.

The Office Action also rejected claim 14 over U.S. Patent No. 4,325,605 to Winzer, et al. (the Winzer patent). As shown in FIG. 2 of that patent and described in the first paragraph of column 3, the tap coupler of the Winzer patent uses a reflective layer 21 to provide the tap signal. By contrast, the structure defined by claim 14 uses reflection from the end of the waveguide to provide the tap signal. No art of record suggests modifying the teachings of the Winzer patent. Consequently, claim 14 and its dependent claims 15-20 and 32 distinguish over the art of record to this application and are in condition for allowance.

The other independent claim 25 similarly recites:

“each input fiber having an output end disposed at an output surface of the input block for emitting optical signals from the input fiber into air, wherein the output surface of the substrate including the output ends of the

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input fibers is inclined with respect to a plane normal to the direction of the input fibers at the output surface for reflecting a portion of the optical signals from the input fibers toward a top surface of the substrate.”

For the reasons discussed above with respect to claim 14, claim 25 and its dependent claims 26-31 and 33 distinguish over the art of record and are in condition for allowance.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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